

The Influence of Global Regulatory Changes and Customer Preferences on the Development of Alternatives to Long Chain Fluorinated Chemicals

Richard Holt
DuPont for FluoroCouncil
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FluoroCouncil

Global Industry Council
for FluoroTechnology

- The FluoroCouncil represents some of the world's leading fluoro-technology manufacturers.
- Our membership includes companies that manufacture, formulate or process:
 - fluoropolymer products
 - fluorotelomer-based products
 - fluoro-surfactants
 - fluoro-surface property modification agents

What Transition is Occurring?

- Industry is moving away from long chain PFC's toward alternative fluorochemistries such as short chain products that are generally equally efficacious and have improved environmental and biological profiles.

Why is this Transition Occurring?

- **Regulatory Direction**
- **Customer Preference**
- **Industry Stewardship**

Regulatory Direction

Long chain products are under re-evaluation and/or restrictions or bans in multiple countries and regions including:

- US
- EU
- Norway
- Canada
- Germany

United States

- **“EPA intends to consider initiating TSCA section 6 rulemaking for managing long-chain PFCs. TSCA Section 6 provides authority for EPA to ban or restrict the manufacture (including import), processing, and use of these chemicals.”**

[U.S. Environmental Protection Agency 12/30/2009]

- **2010/2015 EPA PFOA Stewardship Program**

European Union

- European directive restricting PFOS was (EC) 2006/122/EC relating to restrictions on the marketing and use of perfluorooctane sulfonates
- Moved to Annex XVII to Regulation (EC) 1907/2006 (restrictions under REACH).
- Now subject to European Regulation (EC) 757/2010 amending Commission Regulation (EC) No 850/2004 on persistent organic pollutants.

Norway

- Submitted two harmonized Classification and Labeling dossiers to ECHA: APFO/PFOA:

ReproTox Cat 2 – Carcinogenic Cat 3. Likely to be on agenda of Risk Assessment Committee by the end of 2011

- Proposed consumer product content regulations

Germany

Revised Annex XIII criteria: may lead to revision of the PBT evaluation of PFOA by the German Environmental Protection Agency (UBA).

Canada

- Environmental Performance Agreement: PFOA and Long-Chain PFCA's – complementary to EPA 2010/15 programme
- Prohibitions on new C8 fluorotelomer chemistries
- Regulations on virtual elimination of PFOS and derivatives
- Draft risk assessments for PFOA and PFCA's

Articles of Commerce

Efforts are aimed at regulating articles of commerce containing even trace residuals of certain fluorinated materials

- EU Marketing & Use Restrictions
- US Chemical Action Plan
- Norway

Regulatory Direction: Summary

- **The general regulatory direction is toward greater restrictions and bans for LCPFCs**
- **And approval for the manufacture and use of alternative fluorochemistries such as short chain products**

Customer Preference

- Strong signals are coming from many of our customers, including major global consumer retailers and brands, that they prefer products that are not produced with or use LCPFCs.
- Retailers including Wal-Mart and McDonald's have announced their intent to study or use alternatives to PFOA-based products or packaging.

Wal-Mart Example

- Wal-Mart is About to Create a Sea Change ["Sea Change" = major]

Wal-Mart will fundamentally alter the marketplace this year by announcing a chemicals screening policy for all its suppliers. The policy **emphasizes persistent bioaccumulative toxicants (PBTs)**, carcinogens, mutagens and reproductive toxicants, identifies a top3 list of chemicals for action and promises an additional 17 to be listed over the next two years. In many ways, this initiative could have a greater impact than any government driven regulation.

[Innovest, 01.07 "Cross Cutting Effects of Chemical Liability from Products"]

- "The companies producing for **Wal-Mart** are not going to make a special line for them and another line with those chemicals for everyone else. And this is going to **make it easier for other retailers to follow suit.**"

[Food and Health, 03.01.11 "Walmart Becomes the New EPA"]

Shareholder Resolutions

- ▶ **ConAgra**

Shareholders request that the Board publish a report to the shareholders within six months of the 2006 Annual meeting... setting forth policy options for ConAgra to **reduce or eliminate the use of PFOA-related chemicals in product packaging.**

- ▶ **Mohawk Industries**

The shareholders of Mohawk Industries urge the Board of Directors to issue a report on PFOA and PVC in Mohawk Industries products by the 2008 annual meeting...discussing the feasibility of an **expeditious phase-out of the use of PFOA** and PVC in the production of all Mohawk products, including materials that may degrade to PFOA in use or in the environment, and the deployment of safer substitutes.

The Direction of Our Customers: Summary

- **Downstream customers are moving away from LCPFCs and requiring use of alternative chemistries.**

Industry's Stewardship

- Biopersistence of PFOS, PFOA and higher PFSA (perfluoroalkyl sulfonate) and PFCA (perfluorocarboxylic acids) homologues
- Discovery and commercial availability of alternative fluorochemistries such as short chain products that are generally equally efficacious and have improved environmental and biological profiles
- Listening to our customer base
- It makes business sense

Conclusion

- **Industry is moving away from Long chain fluorinated chemicals because:**
 1. **Our customer base is requesting a move and to encourage others to transition to new products**
 2. **Regulations are rapidly moving toward restrictions and bans**
 3. **Adequate and improved alternatives are now available**
 4. **It makes good business sense!**

Questions?

Thank You

**Richard Holt, Consultant for DuPont
[holtrf1@comcast.net]**

**or Jessica Steinhilber, FluoroCouncil
[jessica_steinhilber@fluorocouncil.com]**



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Extra Slides

FluoroCouncil Membership

- Asahi Glass Co., Ltd.
- Clariant International, Ltd.
- Daikin Industries, Ltd.
- DuPont Company

What are the Long Chain Chemistries?

- Perfluorocarboxylic acids (PFCAs) with carbon chain lengths C8 and higher, including perfluorooctanoic acid (PFOA);
- Perfluoroalkyl sulfonates (PFASs) with carbon chain lengths C6 and higher, including perfluorohexane sulfonic acid (PFHxS) and perfluorooctane sulfonate (PFOS); and
- Precursors* of these substances that may be produced or present in products.

** For definition purposes "precursor" means a substance that has been recognized as having the potential to degrade to perfluorocarboxylic acids with a carbon chain length of C8 and higher (including PFOA) or perfluoroalkyl sulfonates with a carbon chain length of C6 of higher (including PFHxS and PFOS).*

Primary Current Transition Path

- **Surfactants**

- From ≥ 6 -Carbon to 4-Carbon-based sulfonate chemistry
- From ≥ 8 -Carbon to 6-Carbon Fluorotelomer chemistry
- From 8- and 9-Carbon Perfluorocarboxylate Polymerization Aids (PFOA/PFNA) to certain Mono- and Poly-perfluoroethers or other substances

- **Surface Modification Polymers**

- From ≥ 6 -Carbon to 4-Carbon-based sulfonate chemistry
- From ≥ 8 -Carbon to 6-Carbon Fluorotelomer chemistry

- ▶ **Requires coordination with manufacturers in a wide range of downstream industries, from consumer product manufacturers to defense and aerospace industry**

Shareholder Resolutions, cont.

- **Best Buy**

Shareholders request that the Board publish a report on Best Buy's policies on product toxicity... by December 2008. This report should summarize which, if any, product lines or categories sold in Best Buy stores may be affected by the product toxicity concerns described above, and **options for new initiatives, above and beyond legal compliance, that management can or will take** to respond to this public policy challenge.

- **Bed, Bath and Beyond**

Shareholders request that the Board publish a report ...by December 2007...summarize which, if any, product lines or categories sold in Bed Bath & Beyond stores may be affected by the **new product safety concerns** ... and **options for new initiatives** that management can or will take to respond to this public policy challenge

Other Customers Following Similar Path

- **American Apparel and Footwear Association (AAFA) RSL**
<http://www.apparelandfootwear.org/Resources/restrictedsubstances.asp>
- **AFIRM (Apparel and Footwear International RSL Management Working Group)**
"Mission: To reduce the use and impact of harmful substances in the apparel and footwear supply chain."
<http://www.afirm-group.com/index.html>
- **Outdoor Industry Association EcoIndex** (>3,000 manufactures, retailers and brands are members!)
<http://www.outdoorindustry.org/>
<http://www.ecoindexbeta.org/>

Other Customers Following Similar Path

- **The Sustainable Apparel Coalition**
<http://www.apparelcoalition.org/>
- **Oekotex** Certification (example of eco-labelling)
http://www.oeko-tex.com/oekotex100_public/content5.asp?area=hauptmenue&site=oekotexstandard100&cls=02
- **Bluesign Technologies** (example of supply chain management/integrity to help brands and retailers achieve their sustainability goals)
<http://www.bluesign.com/>



Ergänzungen zum Inhalt:

- Seit 2011 neue Kriterien zur Identifizierung (Änderung Anhang XIII)
- Hinweise auf Biomagnifikation können beruhen
- PFOA erfüllt auch das B-Kriterium

➔ PFOA ist ein PBT-S

Perfluoroktansäure (PFOA) - Verbreitung in der Umwelt und Möglichkeiten der Regulierung nach REACH

Staude, C., Biegel-Engler, A.

Umweltbundesamt, Fachgebiet IV 2.3 – Chemikalien

Ansprechpartner auf der PFC-Fachtagung

Dr. Christoph Schulte und Lena Vierke

(Umweltbundesamt, Fachgebiet IV 2.3)

Einleitung

Perfluoroktansäure (PFOA) gehört zu den bekanntesten Vertretern der perfluorierten Chemikalien (PFC). Diese Chemikalien finden aufgrund ihrer fett-, wasser- und schmutzabweisenden Eigenschaften sowie chemischen und thermischen Stabilität in vielen Bereichen Anwendung. Beispielsweise werden sie in der Galvanik, Papier- und Textilindustrie eingesetzt.

Ein Grund für die weltweite Verbreitung von PFOA sind flüchtige Vorläuferstoffe. Zum Beispiel entsteht PFOA erst im Organismus aus den in Haushaltstextilien (z.B. mit PFC behandelte Teppich) enthaltenen flüchtigen Vorläuferstoffen. Diese verbreiten sich in der Innenraumluft, gelangen über die Atemluft in den menschlichen Körper und werden dort in PFOA umgewandelt und angereichert.



Verbreitung in der Umwelt



Möglichkeiten der Regulierung nach REACH-VO

Unter REACH gibt es zwei Möglichkeiten der Regulierung: das Zulassungsverfahren und das Beschränkungsverfahren.

Zulassungsverfahren:

- Verwendung und Inverkehrbringen von Stoffen nur nach Zulassung durch EU-Kommission
- Zulassung gilt nicht für Herstellung, Import und Stoffe in Erzeugnissen
- Zulassung gilt nicht für Vorläuferstoffe

➔ **Keine vollständige Regulierung von PFOA:**

Das Zulassungsverfahren reguliert nur Verwendung und Inverkehrbringen von PFOA. Die Umweltexposition geht in dem Beispiel des PFC behandelten Teppich jedoch von den im Teppich enthaltenen PFOA-Vorläuferstoffen aus. Eine Zulassungspflicht würde hier keine Verminderung der PFOA Konzentration bewirken

Beschränkungsverfahren

- Verbot für Herstellung, Inverkehrbringen, Import und Verwendung eines Stoffes sowie für Zubereitungen, Erzeugnisse und transportierte Zwischenprodukte
- Flüchtige Vorläuferstoffe können mitreguliert werden

➔ **Vollständige Regulierung von PFOA und dessen Vorläuferstoffen**

PFOA kann nur durch eine Beschränkung vollständig reguliert werden. Neben Rückständen in Erzeugnissen werden hier auch die Vorläuferstoffe von PFOA reguliert. Zur Beschränkung von PFOA ist jedoch zuerst eine Identifizierung SVHC notwendig.

[English translation]

**Amendments to the poster content:
“Since 2011 new criteria for identification
of PBT-materials (changes attachment XIII)”**

**“Indications of biomagnifications can be
considered”**

“PFOA also fulfills the B-criterion”

**“→PFOA is a PBT-material” [Not an official UBA
postion to date]**